

Blue

Work Order ID 58297

May 3, 2010 10:34:46 AM



Page 1

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

*R*Date: *10-5-08*

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D206-667-243

C

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-203 CHG003

*8 10/05/05**HJ for BG 10/05/21*

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-243 using CNC bender program 206L-AF and Folio FT

(IV) 2 MB 10-05-12

120

QC15- Crosstube Dimensional Check

0.00



QC

Memo

0.00

Quality Control

*8 10/05/12**(1)*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

0.00



Crosstubes

Crosstubes

Memo

** check Dim sheet before Drilling P 5/10/12*

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243

6-Drill Fwd rivet holes using drill Jig DT8789FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D206-667-243.

8-C'sink holes as per Dwg D206-667-243.

9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-243 Inside of Cuff(Donot engrave on outside of tube)

10 -Deburr & Inspect for surface damage. Repair damage within limits as per Dwg

*MB 10-05-12**MB 10-05-13*

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

D206-667-243

140

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

(IX) MB 10-05-13

150

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

8/10/05/13

(X) _____

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

8/10/05/13

(X) _____

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

170

Outsource process - NDT per QSI038 4.1

0.00



Outsource2

Memo

0.00

Outsource process - NDT

Liquid Penetrant Inspection as per QSI 038Or

Issue P/O: 11989

LPI as per ASTM 1417

Level 2 Attach copy of NDT results to work order

CY 10/5/13 (1)

180

Packaging

0.00



Packaging

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

PC 10/5/13 (1)

190

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Ensure results are as per Dwg D206-667-243

M 10 05 17 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Work Order ID 58297

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Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

200

0.00



SprayPaint

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2
2-Paint outside crosstube with ~~Watts Iron~~ as per QSI 005 4.2

Primer: 110918

PRIME:

Start Time: 8:00

Finish Time: 9:00

- DelFleet Blue B 113171
- Clear DelFleet B 110899

PAINT:

Start Time: 3:00

Finish Time: 4:00

10 05 17 ①

210

QC14- Inspect Spray Paint

0.00



QC

Memo

0.00

Quality Control

Wrap in plastic bag to protect from scratches

25 10-05-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Work Order ID 58297

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Item ID: D206-667-203BL

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Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220		0.00							
	Crosstubes						10	05	19 (1)
Crosstubes	Memo	0.00							
Crosstubes	1-Install nut plates as per Dwg D206-667-243.								
230		0.00							
	Skidtubes						10	05	19 (1)
Skidtubes	Memo	0.00							
Skidtubes	1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up. A/R Magnobond 6398: 11/2/021 exp: 01/2011								
	2-Install supports and clamps as per Dwg D206-667-243. Torque clamps to 80-100 in lb								
	10.05.20								

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

[illegible]

Page 7

Accept

[illegible]**Setup Start**

Stop

**Cust Item ID:**[illegible]

Customer:

Run Start

Stop

[illegible]

**Insp.
Stamp**

0.00

000 8 10/05/20

Memo

0.00

④

0.00

Memo

0.00

10-521 sf

0.00

2.10.2015

Memo

0.00

④

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Work Order ID 58297

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Item ID: D206-667-203BL

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Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

270

0.00



Packaging

Packaging

Memo

0.00

Identify and pack for shipping as per PPP D206-667-203

Location: _____

PPP Rev: 1

10-5-258

280

0.00



QC21- Final Inspection - Work Order Release

QC

Memo

0.00

Quality Control

10/05/26

C21015126

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

May 3, 2010 10:34:51 AM

Comments:

Required Date: 13/05/2010

Required Qty: 1.00

Washer

M 113706 10 ° 5 - 268

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

May 3, 2010 10:34:51 AM

Page 2

Work Order ID: 58297

Parent Item: D206-667-203BL

Parent Item Name: Crosstube Aft, Blue


Comments:

Start Date: 03/05/2010

Required Date: 13/05/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
D206-667-203TRN  Crosstube Turning Detail		Manufactured	No				Each	2.0000	1			

B-58346 MB 10-05-12 ✓

Location	Loc Qty	Loc Code
LG	2	
53649	1	
53651	1	

D2873-043  Nut Plate Assembly		Manufactured	No				Each	58.0000	2			
--	--	--------------	----	--	--	--	------	---------	---	--	--	--

Location	Loc Qty	Loc Code
LG	58	
53966	20	
56466	18	
57337	20	

MA 10.05.19

D2873-045  Nut Plate Assembly		Manufactured	No				Each	54.0000	2			
--	--	--------------	----	--	--	--	------	---------	---	--	--	--

Location	Loc Qty	Loc Code
LG	54	
53967	15	
53968	20	
57336	19	

MA 10.05.19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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May 3, 2010 10:34:51 AM

Page 3

Work Order ID: 58297

Parent Item: D206-667-203BL

Parent Item Name: Crosstube Aft, Blue

Comments:

Start Date: 03/05/2010

Required Date: 13/05/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	---------------	----------------	--------

D2892-1		Manufactured	No				Each	47.0000	2			
---------	--	--------------	----	--	--	--	------	---------	---	--	--	--



Support

Blue

Location

Loc Qty

Loc Code

LG

47

41986

12

42785

20

53124

13

53348

2

m 10.05.19

D3595-063-450		Manufactured	No				Each	67.0000	4			
---------------	--	--------------	----	--	--	--	------	---------	---	--	--	--



RUBBER CUSHION

Location

Loc Qty

Loc Code

LG

67

53775

39

58161

28

m 10.05.19

MS20601-AD4W10		Purchased	No				Each	170.0000	14			
----------------	--	-----------	----	--	--	--	------	----------	----	--	--	--



RIVET

Location

Loc Qty

Loc Code

LG051

100

114245

100

ST322

70

113220

70

m 10.05.19

May 3, 2010 10:34:51 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Picklist Print

May 3, 2010 10:34:51 AM

Page 4

Work Order ID: 58297

Parent Item: D206-667-203BL

Parent Item Name: Crosstube Aft, Blue

Comments:

Start Date: 03/05/2010

Required Date: 13/05/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	---------------	----------------	--------

MS21042L5

Purchased

No

Each

697.0000

4



Nut



10-5-21 S

Location

Loc Qty

Loc Code

ST300

697

113523

26

113537

3

114108

168

114437

100

114449

400

MS21920-22

Purchased

No

Each

130.0000

4



Clamp(per MIL-DTL-8783C)



Location

Loc Qty

Loc Code

LG

130

111210

31

114077

99

mll 10-05-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

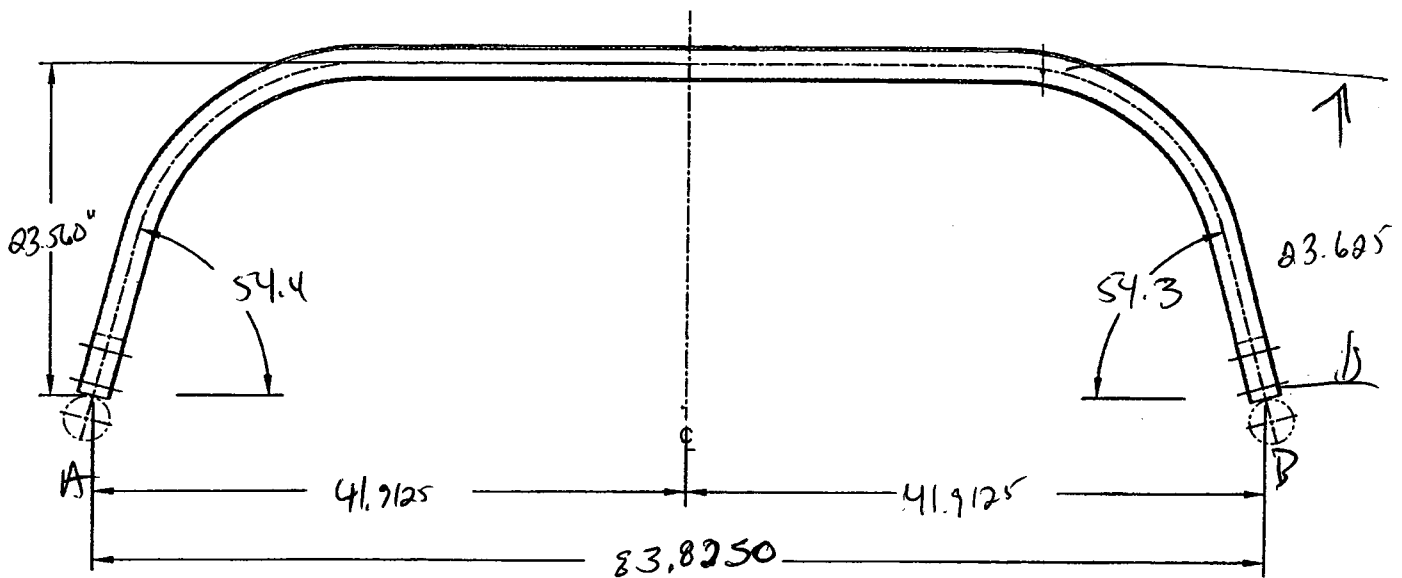
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	58297
Description: Crosstube High Aft (206L)	Part Number:	D206-667-203
Inspection Dwg: D206-667-243 Rev: C		Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.1



Comments

QC15 Inspection	S
Date	10/05/12

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.17	Dwg Rev updated	KJ	
C	09.12.14	Dimensions update per Dwg Rev C	KJ	

W/O:		WORK ORDER CHANGES					
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Item	Qty -243	Part Number	Description
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 51297
2810-5-03

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
08/11/06

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, CS-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<u>RF</u>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<u>RF</u>	DRAWING NO.	REV. C
CHECKED	<u>RF</u>	D206-667-243	SHEET 1 OF 4
MFG. APPR.	<u>RF</u>	TITLE	SCALE
APPROVED	<u>RF</u>	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DE APPR.	<u>RF</u>	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		

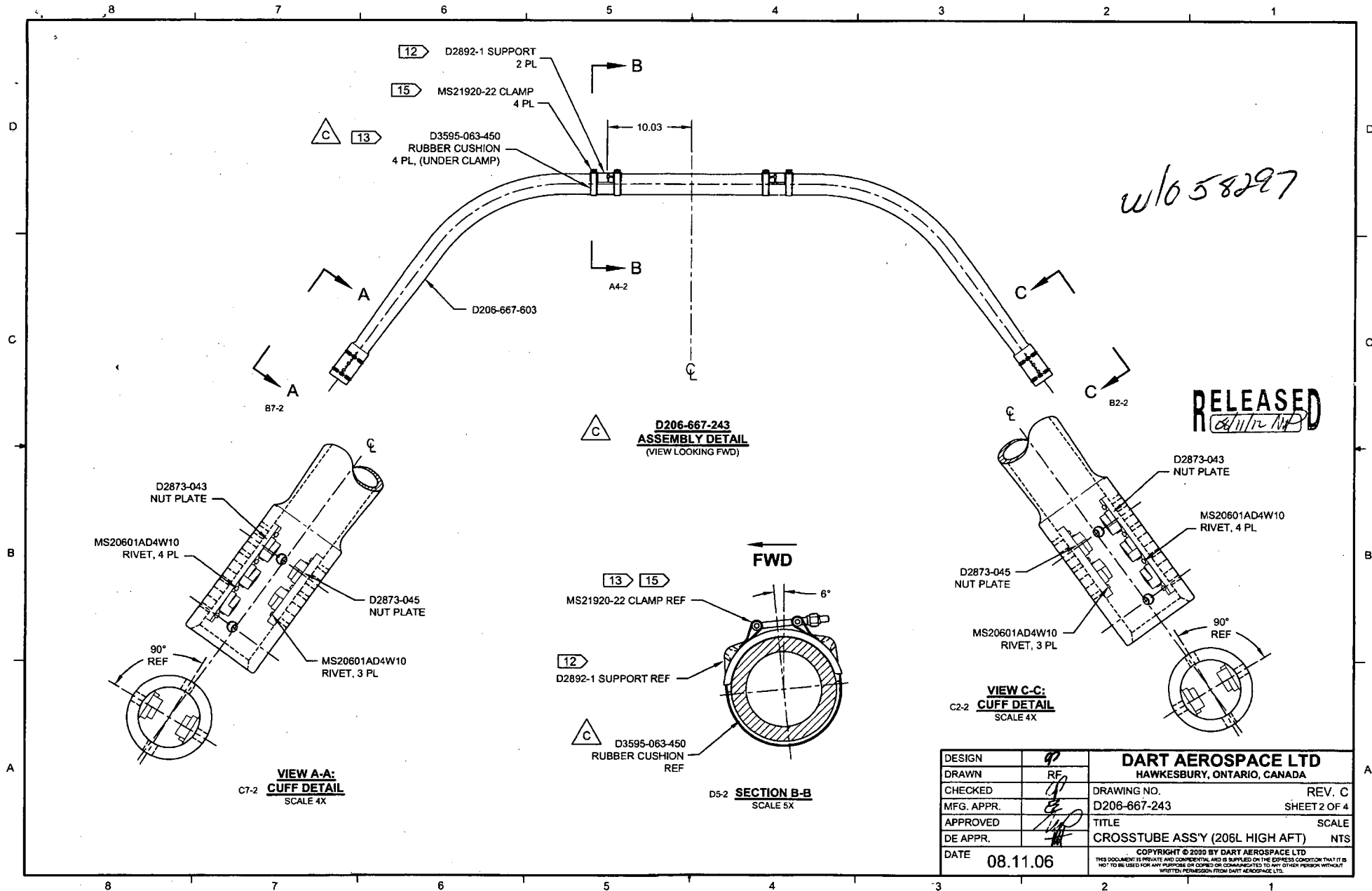
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



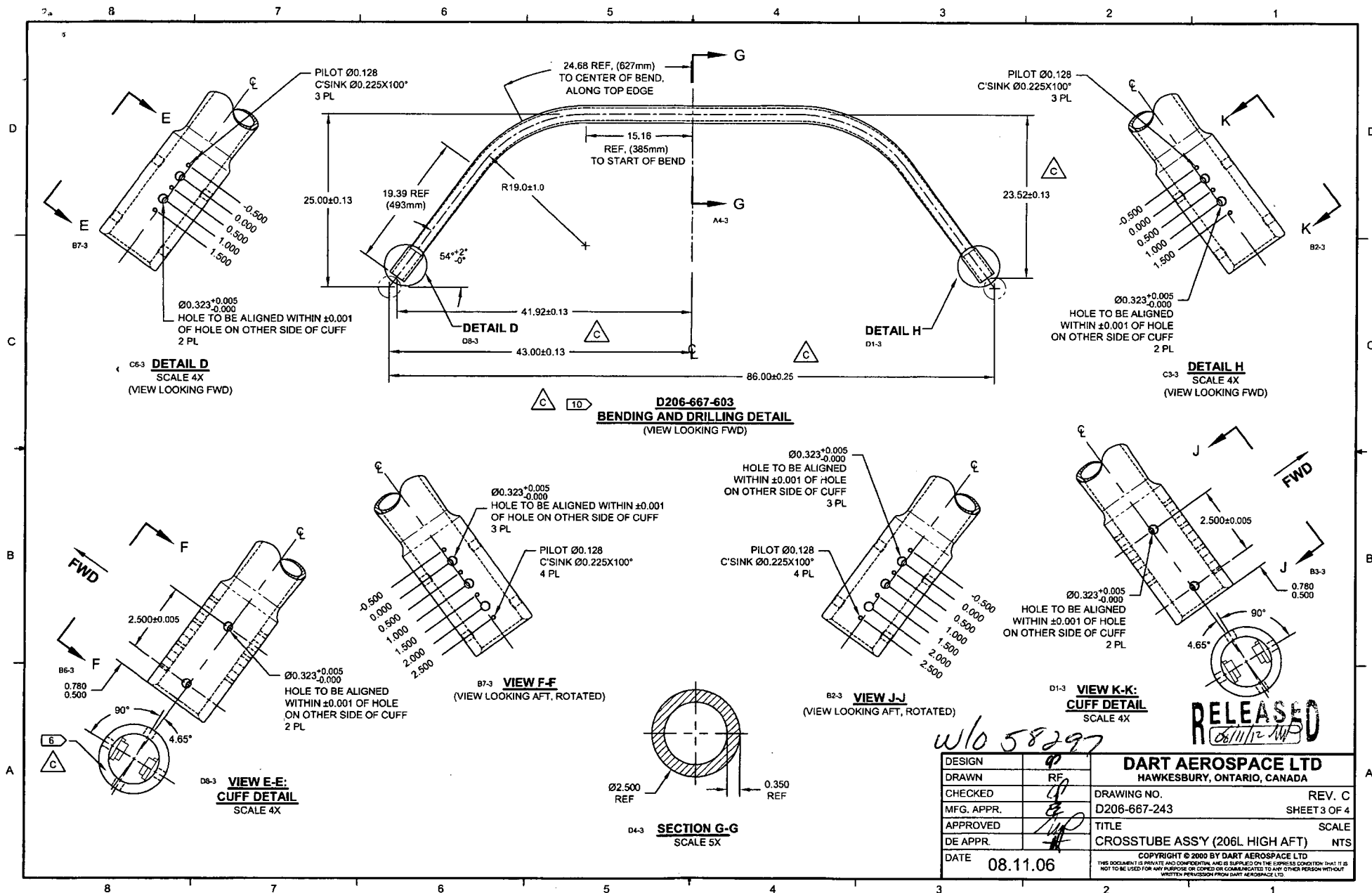
W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

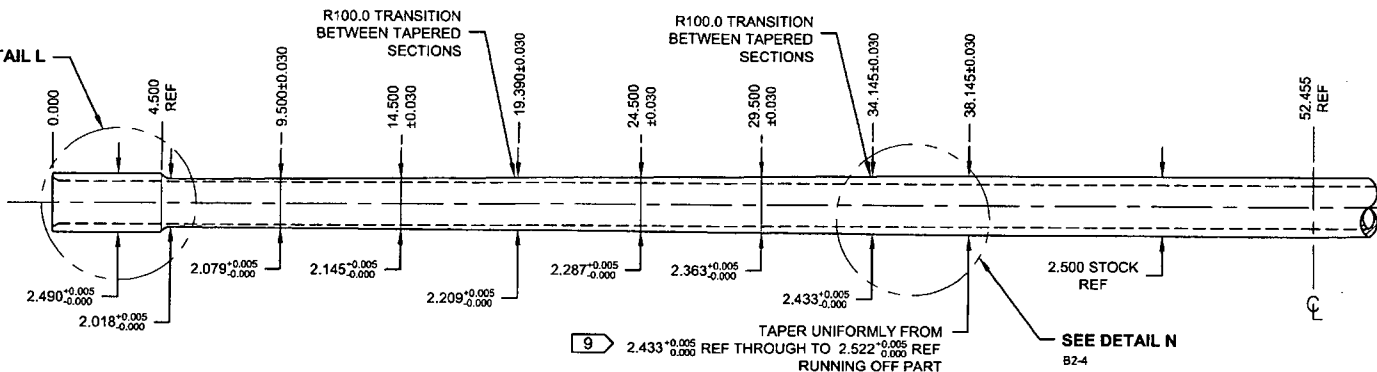
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

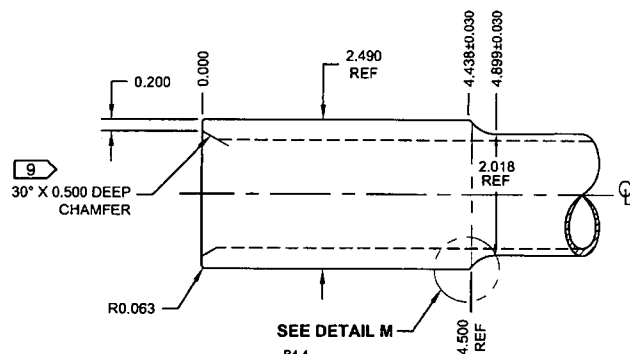
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

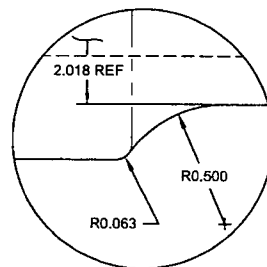
SEE DETAIL L
B7-4



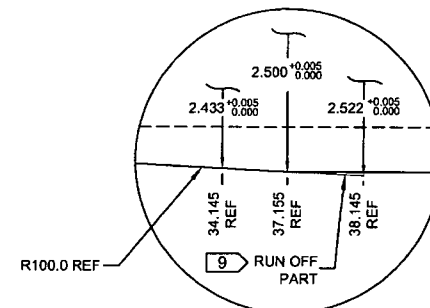
TURNING DETAIL



DETAIL L: CROSSTUBE CUFF
NOT TO SCALE



DETAIL M: CUFF TRANSITION
NOT TO SCALE



DETAIL N: TAPER RUN-OFF
NOT TO SCALE

W10 58297

RELEASED
08/11/12

DESIGN	9	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	9	DRAWING NO.	REV. C
MFG. APPR.	9	D206-667-243	SHEET 4 OF 4
APPROVED	9	TITLE	SCALE
DE APPR.	9	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	<small>COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

5.0

Item	Qty	Part Number	Description
	X	D206-667-011	SPACER & LOCK KIT
		D206-667-013	NUT PLATE KIT (-101/-103/-105/-203/-205)
		D206-667-015	NUT PLATE KIT (-205)
		D206-667-101	CROSS TUBE INSTALLATION, 206A/B HIGH FWD
		D206-667-201	CROSS TUBE INSTALLATION, 206A/B HIGH AFT
		D206-667-103	CROSS TUBE INSTALLATION, 206L/L HIGH FWD
		D206-667-203	CROSS TUBE INSTALLATION, 206L/L HIGH AFT
		D407-667-105	CROSS TUBE INSTALLATION, 407 HIGH FWD
		D407-667-205	CROSS TUBE INSTALLATION, 407 HIGH AFT
1		D206-667-141	CROSS TUBE ASSEMBLY, 206A/B HIGH FWD
2		D206-667-241	CROSS TUBE ASSEMBLY, 206A/B HIGH AFT
3		D206-667-143	CROSS TUBE ASSEMBLY, 206L/L HIGH FWD
4		D206-667-243	CROSS TUBE ASSEMBLY, 206L/L HIGH AFT
5		D407-667-145	CROSS TUBE ASSEMBLY, 407 HIGH FWD
6		D407-667-245	CROSS TUBE ASSEMBLY, 407 HIGH AFT
10		D2831-1	SUPPLIER
11		D2832-1	SUPPLIER
12		D2834-1	SUPPLIER
13		D2836-400-694	ABRASION
14		D2836-400-773	ABRASION
15		D2836-600-851	ABRASION
16		MS21920-20	CLAMP
17		MS21920-22	CLAMP
18		MS21920-24	CLAMP
19		AN5-32A	BOLT
20		AN5-34A	BOLT
21		MS21042L5	NUT (OR MS21042S)
22		AN660JD516	WASHER
23		D3150-1	CHAFER
30	5	AN4-3A	BOLT
31	5	AN4-7A	BOLT
32	16	AN660JD416	WASHER
33	2	D3193-041	SPACER & LOCK ASSEMBLY
40		D2873-043	NUT PLATE
41		D2873-045	NUT PLATE
42		D2872-043	NUT PLATE
43		D2872-045	NUT PLATE
44		AN5-7A	BOLT
45		AN5-10A	BOLT
46		AN5-30A	BOLT
47		AN5-32A	BOLT
48		AN660JD516	WASHER
49		MS21042L5	NUT (OR MS21042S)

THE PARTS ARE INCLUDED IN D206-667-141/241/143/243, & D407-667-145/245 ASSEMBLIES ABOVE

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 15323

PAGE 1 OF 1

CLIENT DART Aerospace DATE MAY 13-2010 TIME AM ☒ PM ☐
ATTENTION LINDA/CHANTEL ACUREN JOB NO. 188-10 0754
ADDRESS 1270 ABERDEEN, HAWKESBURY ON. PO/NO. [11889]
WORK LOCATION 540P
ACCEPTANCE STD. ASTM 1417 REV./DATE 2007
PROJECT F.P.I. ON CROSS TUBES
ITEM(S) EXAMINED 5 PCS

OB DESCRIPTION PROCEDURE NO. LT-0002 REV./DATE TECHNIQUE NO. LT-2 REV./DATE
PART NO. MATERIAL ALUMINUM THICKNESS
SCOPE WET FLUORESCENT LIQUID PENETRANT INSPECTION
CARRIED OUT 100% EXTERNAL

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
AMILY BRAND MAGNAFLUX BLACK LIGHT S/N 16459 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT 2LG7 MINIMUM DWELL TIME 95 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER LABINO
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 1098866 CAL DUE DATE
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☐ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- ☐ METRIC ☐ IMPERIAL

1 - CROSS TUBE - W.O. 58297 ✓
1 - CROSS TUBE - W.O. 58488 ✓
1 - CROSS TUBE - W.O. 58487 ✓
1 - CROSS TUBE - W.O. 57783 ✓
1 - CROSS TUBE - W.O. 57784 ✓

10-05-17

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

Acuren Group Inc. performs the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE John Titley PRINT SIGNATURE
TECHNICIAN (SIGNATURE): Mike Johnston 1st TECHNICIAN 2nd TECHNICIAN
NAME (PRINT): CGSB LEVEL 2 SNT LEVEL 6066 CGSB REG. NO. 6066
DTR # E27408
REPORT REVIEWED BY: NAME INITIALS